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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/972,158	10/09/2001	Kenichi Morigaki	43888-116	4926

7590 11/18/2003

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WASHINGTON, DC 20005-3096

EXAMINER

DOVE, TRACY MAE

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/972,158

Applicant(s)

MORIGAKI ET AL.

Examiner

Tracy Dove

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

Art Unit: 1745

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 10/9/01 has been considered by the examiner.

Election/Restrictions

Applicant's election of Group I in Paper No. 4 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Objections

Claim 1 is objected to because of the following informalities: the claim recites "at least one of an acrylate unit and methacrylate unit", which is improper Markush group language. Examiner suggests "at least one of an acrylate unit or methacrylate unit". Appropriate correction is required.

Claim 4 is objected to because of the following informalities: the claim recites "at least one of said positive electrode and negative electrode", which is improper Markush group language. Examiner suggests "at least one of said positive electrode or said negative electrode". Appropriate correction is required.

Claim 6 is objected to because of the following informalities: the claim recites "at least one of an acrylate unit and methacrylate unit", which is improper Markush group

Art Unit: 1745

language. Examiner suggests "at least one of an acrylate unit or methacrylate unit".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Amano et al., JP 11-053936.

Amano teaches a lithium battery having a positive electrode containing lithium manganese oxide, a negative electrode containing a material which can occlude lithium ion and a solid state electrolyte (0025). The solid state electrolyte (separator) includes an electrolyte solution and a matrix polymer of a polyvinylidene fluoride compound having a side chain introduced thereto by electron beam emission (crosslinked, see Hawley's page 323) to form a gel polymer electrolyte (abstract). The side chain compound may be an aliphatic acrylate compound such as an alkylene oxide acrylate compound (0013-0015). The side chain compound is 3-40% of the vinylidene fluoride repeat unit (0017). The components of the electrolyte solution (salt and solvent) are disclosed in paragraphs 0019-0021. The polyvinylidene fluoride used as the matrix polymer may also be used as the binder for the positive electrode and/or negative electrode (0031-0032). The matrix polymer and/or binder may have a main chain of polyvinylidene fluoride and a side chain of hexafluoropropyl methacrylate (oxygen-containing group) (0049).

Thus the claims are anticipated.

Art Unit: 1745

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Claims 1, 3 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Takadera et al., JP 11-035765.

Takadera teaches a solid polymer electrolyte (separator) for a lithium polymer battery. The lithium polymer battery includes a positive electrode of lithium cobalt oxide, a negative electrode of a material that can dope and undope lithium ion and the solid polymer electrolyte (separator) (0030-0033). The solid polymer electrolyte includes a non-aqueous solution (liquid organic electrolyte), an ether polymer comprising ethylene oxide and/or propylene oxide and a fluoropolymer. The ether polymer is preferably crosslinked (abstract). The fluoropolymer may be polyvinylidene fluoride and the ether polymer may be polyethylene oxide diacrylate (polyethylene glycol diacrylate) (0040). The ether polymer has a average molecular weight in the range of 1000-50000 (0015). The negative electrode may contain a styrene butadiene rubber (0034). The solid polymer electrolyte comprises a mixed polymer (copolymer) of the ether system polymer and the fluorine system polymer (0048).

Thus the claims are anticipated.

Conclusion

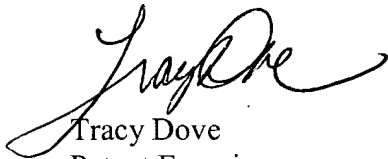
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakamura et al. 6,387,570 teaches a polymer gel electrolyte or a binder for use in lithium secondary batteries. The electrolyte or binder includes fluorine-containing polymers.

Art Unit: 1745

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821.

The Examiner may normally be reached Monday-Thursday (9:00 AM-7:30 PM). My supervisor is Pat Ryan, who can be reached at (703) 308-2383. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax numbers are 703-872-9310 (after non-final) and 703-872-9311 (after final).

A handwritten signature in cursive script, appearing to read "Tracy Dove", is written over the printed name.

Tracy Dove
Patent Examiner
Technology Center 1700
Art Unit 1745

November 10, 2003